Outline of the Proposed Research Work Entitled

"SPATIO-TEMPORAL GROWTH AND DISTRIBUTION OF URBAN SETTLEMENT IN JALGAON DISTRICT''

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By

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1.1 INTRODUCTION:

Urban Geography is an important branch of human geography within the sphere of geography. Urban geography as a distinct branch of Human Geography developed after Second World War. According to Mayer and Kohn, "The Study of urban geography is largely a product of the 20th century."

Griffith Taylor states that, "Urban geography includes the site, evolution, pattern and classification of towns." Whereas R. E. Murphy explains, "Urban geography deals with spatial aspect of urban development and non-urban areas as they relates to cities. The concern is determining the areal patterns associated with urban centres and in explaining their arrangement."

Towns have been interested subject matter of geographers from ancient time. Strabo explained in his book of 'Geography', a location is most important controlling factor of towns. In 1807 John Pinkerton published, 'Modern Geography' a description of the empires, kingdoms, states and colonies with the oceans, seas and islands in all part of world.

Karl Hassert and Raoul Balanchard have made important contribution in urban geography in first decade of 20th century. In 1933 Walther Christaller worked on the Central Places of South-Western Germany. In 1951, H. M. Mayer emphasis on the systematic study of urban geography in 'Geography and Urbanism.'

The term 'Urban' refers to towns or cities. Urbanization indicates population increase in urban areas, the growth of secondary and tertiary activities. According to Hauser and Duncan, "Urbanization as a change in the pattern of population distribution. It involves an increase in the size of urban population and growth in number and size of urban places with increasing population of such places." According to G. T. Trewartha, "the shift of population from village to city and the process of transformation of villages into city is called urbanization."

According to United Nation, the urban place has a permanent settlement more than 2, 0,000 peoples. As per **Census of India, 2011** the concept of tows is defined in following ways.

i) All places with a municipality, corporation, cantonment board or notified town area committee, etc.

ii) All other places which satisfied the following criteria:

   i. A minimum population of 5,000;

ii. At least 75 per cent of the male main working population engaged in non-agricultural pursuits; and

iii. A density of population of at least 400 persons per sq. km.

The first category of urban units is known as Statutory Towns. These towns are notified under law by the concerned State/Union Territories Government and have local bodies like municipal corporations, municipalities, municipal committees, etc., irrespective of their demographic characteristics as reckoned on 31 December 2009. Examples- Pune (M Corp.), Mumbai M Corp.) Etc.

In India the tradition of urban living and town planning goes back to the Indus Valley Civilization, Mohanjodaro and Harrappa, which flourished about 5000 years ago. But urbanization in India is rapidly increasing after independence. Since last 50 years cities have been expanded vigorously. It is much necessary to study cities because in only 35 years (1960 to 1995) the urban population of the world has increased from 300 million to 3 billion. India's urban population of 31.16 per cent in 2011. In most of the third world countries the migration of rural population in urban areas is the issue, which has hampered the provision of adequate water supply, sufficiency of transport, and favours rush in market centres and residential houses. Urbanization and rapid growth of cities has created tremendous problems which is the root cause of all urban crisis.

Different problems of cities will be required to systematic study of it. Cities of the world particularly developing world have been facing some common problems such as huge crowed of houses, influx of migrants to the huge number, increase of land prices, lack of amenities, slum areas, increase of air pollution, inadequate supply of water, favours out break diseases like cholera, small pox, plague and misele, noise pollution can all result in short term chronic or fetal health problems, inadequate transport facilities, unemployment, dearth of electricity, lack of open spaces and recreational places, problem of squatter settlements, problem of waste and sewage disposal. Rural urban fringe is transitional zone between urban and rural area which also suffer from the problem of urban explosion. The physical and social conditions of Indian cities have deteriorated with an alarming rate due to alarming population increase and environmental pollution.

Above aspects harnessing the resources and creating environmental hazards. For the beautification of the urban environment and making it more attractive for convenient living, it is requires proper urban planning.

The concept of urbanization is related to the preparation of the population increased in urban area as compared to rural area. The ratio of urban population differs from the growth rate of urban populations. The growth of present cities is based on urbanization and industrialization. The concept of urbanization is defined by different ways by geographers, urban planner, sociologists, economists and administrators. **Smiles** (1975), define the urbanization in geographical and sociological views. According to **Lampard** (1965), there are three concepts of urbanizations, which are demographic, structural and behavioral.

According to **Stamp**, "Urbanization is characterized by movement of people from small communities concerned chiefly or solely with agriculture to other communities generally larger, where activities are primarily centered in management, manufacturing, trade and allied interest.

1.2 REVIEW OF LITERATURE:

After independence, cities have been expanded vigorously in India. The cities of India offer worst form of visible poverty and problems with their slums and squatter settlements, unsanitary living condition, chronic shortage of services, polluted air and water, traffic congestion and lack of open space. Therefore, geographers have examined future urban scenario, together with the development and positive policy towards urbanization. Such type of research works done by R. L. Singh and Rana P. B. Singh (1977), Allen G. Nable and Ashok K. Dutta (1977), Ram Bali Singh and Minati singh (1992), E. A. Johnson (1965)), Ashish Bose (1980) and R. B. Singh (1975 and 1983). **A. K. Singh** (2007) (in his Ph.D. thesis entitled 'Patterns and Process of Urban Development in Jharkhand: A Case Study of Ranchi City') examined the Patterns and Trends of Urbanisation, Municipal Finance, Urban Infrastructure and Services in Jharkhand. He evaluated growth of Ranchi city from 1834 to 1991. **Berry** (1961) examined the primacy index of cities in under developed countries. His theory has clarified that the step and the continuum hierarchic structure depend on the levels of enquiry.

C. D. Deshpande (1941) studied the cities and towns of Bombay province and his book 'Shahare' gives historical perspective, aspects and growth of urban centers in Maharashtra. **H. G. Rai** (1989), in his Ph.D. thesis entitled 'Urban Growth Trend and Pattern of urban development in Madhya Pradesh' studied the socio-economic characteristic, growth, distribution, migration, rank size rule and spatial relationships, hierarchy and levels of urbanization in Madhya Pradesh based on the data of Census Report, Madhya Pradesh.

L. N. Verma (2014) in his book entitled "Urban Geography"; he summarized the research work done of other scholars and researchers done in the India and World. He gives detail explanation of urbanization in world and India, classification of towns, central place system, rank size rule, urban primacy, metropolises, urban problems, CBD, city region and urban planning. **O. P. Singh** (1969) distinguished the relative and absolute centrality index based on non-agriculture population and commercial population of the towns. **R. B. Mandal** (1998) in his books " Urban Geography" highlighted the population growth, urbanizations, classification of towns, morphology of towns, theories and models in urban studies, central place, town spacing, urban ecology, satellite and dormitory towns, rank size rules, conurbation, metropolitan regions, urban development, urban life and urban planning.

R. C. Chandna (2014) in his book "Geography of Population- Concepts Determinants and Patterns" gives detail picture of urbanization process of World and India. According to him, the privatizations, globalization, mushrooming of higher technical institutes in India is signal of vast expansion of tertiary and quaternary services. **S. D. Maurya** (2015) in his book entitled "Human Geography" explain concepts of town and urban area, origin of towns and cities, classification towns, functional classification of towns, urban hierarchy, urban morphology, pattern of urbanization in India and World. He classified the countries of world based on level of urbanization in very highly, highly, medium and less urbanized countries. The spatial pattern of urbanization in India is divided into three-class viz. high, medium and less urbanized region.

In 1955 R. L. Singh published his pioneer work on 'Banaras : A Study in Urban Geography' and after him various geographers have followed research in urban geography.

Malshe P. T. (1968) has described growth and morphology, demographic features, functional area, public utility services, immediate umland of Kolhapur city. Chakraverty S. C. (1972), 'Delimeation of Planning Areas : An Experiment on Calcutta', Joshi R. P. (1972) - 'Kota City' K. Sita (1972-73) highlights the low level of urbanization in South Konkan, which needs adequate industrial incentive to raise it's level of urbanization. Ram Mohan Rao (1978) has highlights the growth, structure and regional relationship of Warangal City. K. M. Kulkarni (1980) in his study of Nasik City examined the structure, functions and spatial relationship of an Indian city that is both ancient and modern. H. N. Misra (1975) studied under the title 'Urban System of a Developing Economy - A Study of Allahabad City Region'. Singh and Pushpa (1987) - Ghaziabad, Mulik (1989) has described 'Urbanization of South Maharashtra Plateau.'

Ram Mohan Rao has studied Warangal city (1978), Ram Mohan has also described about growth, and structure and religion relationship of Warangal city (1978). **Zodage, S. B.** (2001), has studied the impact of urban growth on environment of Kolhapur city. Kumbhar A. P. (2000) has studied the Urban Geography of Satara. M. Pratap Rao (2001) have giving valuable contribution in Urban Planning - Theory and Practice.

Sita highlights the low level of urbanization in south Konkan which needs adequate industrial incentive to raise its level of urbanization (1972-73). **Kumbhar A. P.** (2000) has studied the Urban Geography of Satara. **Pratap Rao** (2001) has giving valuable contribution in Urban Planning - Theory and Practice. Imphal ; R. P. Joshi (1972), Kota city , Singh has described the geography of Kerakat town (1972), The study illustrated by several maps, deals with the origin, growth functional structure and the service area of the place (1972).

1.3 STUDY REGION:

The Jalgaon District is a district headquarters in Nasik Revenue Division of Maharashtra State. The Jalgaon District is located on 21^{o} 01' North latitude and 75^{o} 34' east longitude. It is an important railway junction of central railway having a height of 201 meters from mean sea level. It covers an area about 11757 sq. kms. The physiography of District is very typical because it is formed by the Deccan lavas with residual hill ranges and broad valleys with small hillocks. The river Girna flowing from south to north direction from western boundary of District. The climate of the District is generally dry except in the monsoon.

According to 2011 census, the population of Jalgaon District was 42,29,917 persons, out of which 21,97,365 are males and 20,32,552 are females. Out of the total Jalgaon population for 2011 census, 31.74 percent lives in urban regions of district. In total 1,342,711 people lives in urban areas of which males are 696,851 and females are 645,860. Sex Ratio in urban region of Jalgaon district is 927 as per 2011 census data. Jalgaon District population constituted 3.76 per cent of total Maharashtra population. Jalgaon district is divided into 4 sub-divisions, 15 talukas and 20 town and cities. Now Jalgaon is one of the important industrial, commercial, transportational and educational centres of Maharashtra. It is also a focal point of economical, cultural, social and administrative activities of North Maharashtra.

1.4 AIMS AND OBJECTIVES:

The present work intends to study the historical growth, demographic characteristics, functional structure or various service facilities, slums and their occupational structure, the main urban problems, planning and suggestions for future development. However the specific objectives of the present study are as follows:

i) To examine the urbanization of Jalgaon District in relation with geographical factors.
ii) To analysis the trends of urbanization in Jalgaon District
iii) To study the Landuse classification of urban center in Jalgaon District.
iv) To understand the occupational pattern of urban center.
v) To calculate centrality and hierarchy of urban settlement.
vi) To find out the potentiality of urban centers in Jalgaon District.
vii) To study the problems of urbanization in Jalgaon District.

1.5 DATA COLLECTION:

The secondary data for the present study has been collected from the following sources:

i) District Census Hand Book of Jalgaon District, 1981, 1991, 2001 and 2011.
ii) Socio-Economic Review and Statistical Abstracts of Jalgaon District 1991 to 2020.
iii) The Gazetteer of Jalgaon District, 1962 and 1994.
iv) Various newspaper, Periodical and journals.
v) The Reports of Town Planning Department Office, Jalgaon.
vi) Various Departments of Zillha Parishad, Jalgaon.
vii) Various News Paper, Periodicals and Journals.

For the Landuse classification, satellite date will be used. Primary data regarding service facilities, shopping centres, transportation and occupational structure shall be collected.

1.6 METHODOLOGY:

In the present study the information and data regarding the aspects of urban geography up to 2011 will be considered. The primary data will be collected with the help of field work. For this purpose a thoughtful and thoroughly questionnaires shall prepared for particular aspect. After collecting primary and secondary data, it will be tabulated and

represented with the help of various statistical techniques. Several maps and diagrams shall be prepared to show, the different types of information and distribution. The analysis and interpretation of data will be done from the geographical point of view. Following formulas and methods will be used for date analysis.

1.6.1 Density of Urban Population$= \frac{\text{Number of People live in urban area}}{\text{Urban Area of region}}$

1.6.2 Population Growth Rate $=$

$$\frac{\text{Population of last census year} - \text{Population of first census year}}{\text{Population of first census year}} \text{ x } 100$$

1.6.3 Dependency Ratio $= \frac{\text{Population of 0 to 14 Age group + Population of} > 60\ Age\ group}{\text{Population of working age group (15 to 65)}} \text{ x } 100$

1.6.4 Rank Size Rule

The rank size and expected population of the town or city is calculated by using the simple formula of Zipf's -

$$\mathbf{P_n} = \frac{P_i}{n}$$

Where,

P_n= estimated population of x^{th} urban centre

P_i= the population of the largest city or town

n= rank of urban centre

1.6.5 Primacy Index

A two city or more city index of primacy can be calculated by using following formula developed by Broning and Gibbs in 1966.

$$\textbf{Primacy Index (P.I.)} = \frac{P_1}{P_2+P_3+P_n}$$

Where

P_1= is the population of rank no 1 town.

P_2= is the population of rank no 2 town.

P_n= is the population of respective no of towns.

1.6.6 Location Quotient

It is computed by using the following formula.

$$L.Q.U.= \frac{UPx/TPx}{UPn/TPn}$$

Where,

L.Q.U.= Location quotient

UPx = Urban population of x^{th} district

TPx= Total Population of x^{th} district

UPn = Urban population of study area

TPn= Total Population of study area

1.6.7 Centrality

The following formula is used for the analysis of centrality index of Maharashtra.

$$\textbf{Centrality} = \frac{T \times 100}{P}$$

Where

T- total number of tertiary worker of the urban center

P- total number of tertiary worker of the study area

1.6.8 Hierarchy

The following formula is applied for the calculation of hierarchy index of the urban center.

$$\textbf{Hierarchy Index} = \sqrt{C \times \frac{T \times 100}{W}}$$

Where

C- Centrality values.

T - total number of tertiary worker of the urban center

W- total number of worker of the study area

1.6.9 Potentiality

The potential index of urban centers is calculated by using the following formula,

$$\textbf{Potentiality Index} = \frac{Pi}{r}$$

Where,

Pi = Population in a x^{th} urban center

r = Distance from the Capital to x^{th} urban center

Potentiality of Urban Density = $\frac{PDi}{PDx}$

Where

PDi= Population density of first rank city of the study area.

PDx= Population density of x^{th} urban center

1.6.10 Share of Urban Population

The shares of urban population are calculated by using following formula.

Share of Urban Population = $\frac{\text{Urban population of } X^{th} \text{ areial unit}}{\text{Total urban population of study area}}$ X 100

1.6.11 Percentage of Urbanization

The following formula is applied for the analysed for the percentage of urban population.

Percentage of Urban Population = $\frac{\text{Urban population of } X^{th} \text{ areial unit}}{\text{Total population of } X^{th} \text{ areial unit}}$ X 100

1.6.12 Degree of Urbanization

The degree of urbanisation has measured by the using following formula-

Degree of Urbanization = $\frac{\text{Percentage of urban population of } X^{th} \text{ areial unit}}{\text{Percentage of urban population of state}}$

1.6.13 Indicators of Urban Development

In this study, Urban Population (U_1), Density of Urban Population (U_2), Percentage of urban Literacy (U_3) and Percentage of Non-Agriculture worker (U_4) are used to measure the level of urban development in the Jalgaon District.

1.6.14 Software

MS Office software was use for the analysis of population data analysis. Arc GIS. Global Maper, Google Earth, Corel-Draw were used for the mapping, image analysis and spatial interpolation of data.

1.7 IMPORTANCE OF THE STUDY:

The unprecedented growth of towns and cities in India has been a result of modernization process causing rapid growth of agriculture and industry. About 27 percent of India's urban population was accounted in 2001 with 286 million people nearly as many as the entire population of the U.S.A. There are areas of high urban growth which are push created by out migration from poor rural regions. By contrasts, states like Punjab, Haryana, Rajasthan, Tamilnadu, Uttar Pradesh and Bihar. Urbanization is pool created by dynamic urban expansion. Until 1931 urbanization in India was slow and halting due to low rate of economic development. India's level of urbanization in 1901 was roughly comparable to that of United States in 1830. Since 1931 the rate of urbanization has quickened and in 2001 Census it has increased to 286 million persons.

Town and Cities have acted as focal points in the cultural landscape of India and they continue to play a major role in India's emergency as a premier industrial and political power in the world. The landscape of urban settlements in India provides a variable laboratory for the study of the complex inter-relationships among the people and between the people and the physical and cultural environments in which they live. The study of urbanization in India by its very nature includes Spatio-temporal, socio-cultural and politico-economic dimensions of analysis.

According to 2011 census, the population of Jalgaon District was 42,29,917 persons, out of which 21,97,365 are males and 20,32,552 are females. Out of the total Jalgaon population for 2011 census, 31.74 percent lives in urban regions of district. In total 1,342,711 people lives in urban areas of which males are 696,851 and females are 645,860. Sex Ratio in urban region of Jalgaon district is 927 as per 2011 census data. Jalgaon District population constituted 3.76 per cent of total Maharashtra population. Jalgaon district is divided into 4 sub-divisions, 15 talukas and 20 town and cities. Now Jalgaon is one of the important industrial, commercial, transportational and educational centres of Maharashtra. It is also a focal point of economical, cultural, social and administrative activities of North Maharashtra.

Taking into consideration of the above aspects, Jalgaon district has been selected and studied in urban geography. Besides these researcher is belonging to the study region and know the various functions and service activities in detail. The researcher also knows the problems of the study region.

1.8 PROPOSED WORK PLAN:

First year plan

1) Review of Literature:

   To approach this study, a review of published literature on relevant subject as well as unpublished material from different researchers and institutions specific to study area will be carried out.

2) Field work and Data collection:

   Data will be collected from various secondary sources and primary data will be collected with help of field work and other methods.

Second year plan:

Collected data related to our research will be analyzed and tabulated with the help of various statistical methods, and later on it will be presented with the help of cartographic and GIS techniques with help of software's.

Third year plan:

1) Interpretation of data:

   Data will be interpreted in this year.

2) Writing and submission of thesis:

   The thesis will be written after the interpretation of data and achievement of objectives and will be submitted at the end of third year

1.9 DESIGN OF RESEARCH WORK:

The present study entitled "Spatio-temporal growth and distribution of urban settlement in Jalgaon District" is divided into seven chapters. Chapter I will deal with the appraisal of problem. This chapter will also devote to review of the relevant literature, aims and objectives, data collection and methodology that have been employed in the present work.

Chapter II 'Geographical setting' deals with physical setting of the region. It includes the location of the region, extent, geology, physiographic, drainage, climate, natural vegetation, agricultural industries and transportation.

Chapter III deals with urbanization and urban growth. It includes the analysis of urban growth, number and size of towns, class wise share of urban population, mean size of urban population.

Chapter IV will devote to rank order fluctuation of urban centers and growth rate of urban centers. It will also devote to spatial distribution of urbanization. It includes the study of factors affecting the distribution of urban settlements.

Chapter V deals with urban population degree of urbanization, degree of urban concentration and distribution of urban centers in different size groups.

Chapter VI will devote to the regional disparities in urbanization.

Chapter VII which will the concluding chapter contains the summary and conclusions, which includes findings, suggestion.

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